Effect of lifestyle, education and socioeconomic status on periodontal health

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Abstract

Background: The health model which forms the basis is knowledge, attitude, temporary, and permanent behaviors. Currently, more emphasis has been directed towards the combined influence of lifestyle, education, levels and socioeconomic factors, instead of regular risk factors in dealing with chronic illnesses. The present study is conducted to correlate the periodontal health of people with reference to lifestyle, education level, and socioeconomic status.
Materials and Methods: A cross-sectional study was conducted in the Department of Periodontics, Narayana Dental College and Hospital, Nellore. A total of 1350 subjects were examined and 948 patients were randomly selected from out patient department. Information about their lifestyle, education level, and socioeconomic status were recorded using a questionnaire and correlated with the periodontal status.
Results: The statistical analysis showed significant decrease in periodontitis when income and education levels increased. Also the prevalence of periodontitis associated with a healthy lifestyle is significantly lower when compared to an unhealthy lifestyle.
Conclusions: There is a strong association of lifestyle, education level, and socioeconomic status with periodontal health.

Keywords: Gingivitis, Lifestyle, Periodontitis, Socioeconomic status

Introduction

Numerous epidemiological studies have shown that the diseases of periodontium are among the most common human afflictions. It is well known that plaque microorganisms, immunological and genetic factors play a major role in the etiology of periodontal disease. More emphasis is now directed toward combined influence of lifestyle and psychosocial factors along with standard risk factors.[1]

Previous studies have associated dental health with tobacco smoking, alcohol consumption, and physical activity.[2] Of late the concept of improved lifestyle is gaining tremendous importance with reference to maintenance of periodontal health. Presently very few studies exist showing the effect of general education, lifestyle, and socioeconomic position on the prevalence of periodontal disease.

Hence in the present study an attempt was made to investigate the effect of lifestyle, education, and socioeconomic position on the periodontal health status of a randomly selected adult population around Nellore, India.

Materials and Methods

A cross-sectional study was conducted in the Department

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of Periodontics, Narayana Dental College and Hospital, Nellore, India. A total of 1350 subjects were examined and 948 subjects were randomly selected depending on following criteria:

- Patients aged 35 years and above
- Presence of more than 15 teeth.

Consent was obtained from all the subjects to participate in the study.

Later the information about their lifestyle, education, and socioeconomic status were assessed by using a questionnaire[3] followed by clinical recordings of inflammation, bleeding on probing, periodontal pockets, and clinical attachment loss. Based on these findings, the patients were categorized into chronic generalized gingivitis (CGG) and chronic generalized periodontitis (CGP). These groups were correlated with following variables:

1. Lifestyle
2. Socioeconomic status
3. Education levels.

Lifestyle
As suggested by Abel,[3] the lifestyle is measured by means of questions about tobacco-related habits, physical activity, dietary habits, and alcohol consumption. All data were recorded in an interview. The four behaviors were combined into one lifestyle variable in order to achieve one representative variable which measures a subject's orientation toward health.

- Tobacco related habits were rated positive if the subject had no habits or quit habit for more than 2 years and rated negative if he or she used any form of tobacco regularly or occasionally (positive 1, negative −1).

- Physical activity was high if the subject was used to any physical form of exercise. In other cases it was rated as low (high 1, low -1).
- Dietary habits were based on three factors: how often the subjects ate vegetables, consumed sweets, and used ghee or butter. If the subject chose the healthiest alternative in all three factors, the habit was rated as positive; if there was one unhealthy alternative as moderate and if more than one then as negative (positive 1, moderate 0, negative -1).
- Alcohol consumption was measured by enquiring about the number of alcoholic beverages consumed in a 1-week period. The results were then used to categorize the subjects into nondrinkers, those who consumed less than seven drinks as moderate and those who consumed more than seven drinks as heavy drinkers (nondrinkers 1, moderate drinkers 0, and heavy drinkers -1).

Thus the total sum score could range from 4 to -4. The combined lifestyle variable was categorized as "healthy" (2–4) and "unhealthy" (-4 to 1).

Socioeconomic status
Socioeconomic status was represented by monthly family income. Three groups were constituted and subjects were categorized into either lower class (<1500–5000), middle class (5000–15000), and upper class (15000 and above).

Education level
The level of education was assessed based on the primary education, secondary education, and graduation or above.

Results

The results were calculated by using Pearson's chi-square test to calculate the P-value:
- When the association between the income and periodontal status was compared, a significant decrease in periodontitis was observed as the income level increased ($P < 0.0001$) as shown in Table 1.
- When the association between the lifestyle and periodontal status was compared, the prevalence of periodontitis had decreased in healthy lifestyle compared with unhealthy lifestyle subjects ($P < 0.0001$) as shown in Table 2.
- When the association between the education level and periodontal status was compared, a significant decrease in periodontitis was observed as the education level increased ($P < 0.0001$) as shown in Table 3.

Discussion

The first 60 years of the 20th century could be termed the "medical era," in which allopathic medicine emerged as the dominant approach to health care: this was based on mass vaccination and the extensive use of antibiotics and is still the main approach in many parts of the world. Now, however, the industrialized parts of the world has entered a "post medical" era, in which physical well-being is undermined by certain types of individual behaviors (e.g.,

Table 1: Association between income and periodontal status

Income	CGG	Percentage	CGP	Percentage	P - value
Lower class	53	31.93	468	59.85	
Middle class	87	52.41	223	28.52	$P < 0.0001$ (HS)
Upper class	26	15.66	91	11.64	
Total	166	100	782	100	

HS – Highly Significant

Table 2: Association between lifestyle and periodontal status

Lifestyle	CGG	Percentage	CGP	Percentage	P - value
Healthy lifestyle	99	59.64	143	18.29	
Unhealthy lifestyle	67	40.36	639	81.71	$P < 0.0001$ (HS)
Total	166	100	782	100	

HS – Highly Significant

Table 3: Association between educational level and periodontal status

Educational level	CGG	Percentage	CGP	Percentage	P - value
Primary education	56	33.73	473	60.49	
Secondary education	77	46.39	221	28.26	$P < 0.0001$ (HS)
Graduation	33	19.88	88	11.25	
Total	166	100	782	100	

HS – Highly Significant

smoking), economic factors (e.g., poverty, overeating), and factors influencing the physical environment which are not amenable to medicines.[4]

The debate on lifestyle and their impact on health is an expression of search for the ways, meeting the new situations. The chronic conditions like cardiovascular disorders, cancer, and periodontal diseases which make up the bulk of morbidity and psychological disorders such as depression and the repercussions of stress are becoming increasingly important.

The first key to prevent many of these conditions was considered to be a change in the health behavior of the individual it is true that excessive drinking and smoking, overeating and faulty nutrition, and lack of exercise have deleterious effects on health.[5]

The term "lifestyle" is taken to mean a general way of living based on the interplay between living conditions in the wide sense and individual patterns of behavior as determined by sociocultural factors and personal characteristics. The range of behavioral patterns may open limited or may extend by means of environmental factors. The way in which an individual lives may produce behavioral patterns that are either beneficial or detrimental to health. If health is to be improved, actions must be directed at both the individual and environmental factors affecting lifestyle.

The concept of a healthy lifestyle being directly related to health was stressed upon by several authors [6] in the past and they found that people with an active lifestyle had fewer symptoms in teeth and gums than those with inactive ones. So the concept of lifestyle makes it possible to study behavior in a wider sense and it sheds more light on the personal characteristics of an individual.

Our results showed a positive correlation between lifestyle and periodontal status. This is in accordance with Rajala[2] who had shown a positive association between dental health behavior and lifestyle variables.

People with an unhealthy lifestyle have a poor periodontal status because of their aberrant brushing habits and detrimental effects of smoking. According to Revicki,[7] smokers tend to have a more negative lifestyle in general. It means that the association of tobacco with periodontal health was linked not only to poor oral hygiene but also to poor general lifestyle.

Studies in the past have shown that females have a better periodontal status and a more positive dental health behavior compared to males.[5] The reasons attributed to this could be esthetics and social pressure on women to look physically attractive thus causing them to lead a healthier lifestyle than men.

When the socioeconomic status was compared to the periodontal status, our study showed a positive association between higher socioeconomic groups and better periodontal status. This is in accordance with Neuman et al.[8] who identified a lower occupational status limiting the use of dental services.

Dental visiting is still not considered a preventive dental behavior; at present it only depends on treatment needs. Thus people from the lower income group fail to make prophylactic visits to a dentist thus giving them poorer dental health behavior.[9]

When education levels were compared to periodontal status, our study showed a positive association between higher education levels and better periodontal status. This is in accordance with Richard et al.[10] who identified education level also a strong indicator of periodontal status.

With regard to self-awareness we found better awareness in three groups: in those with a healthy lifestyle, education, and in those of a higher socioeconomic status.

Conclusion

The concept of lifestyle is something more than behavior; it is a way of life and studied as broadly as possible. From this study we concluded that there is a strong association of lifestyle, education level, and socioeconomic position with periodontal diseases.

Limitations and future directions
A few shortcomings of this study were the self-reporting of all variables; the sample of 948 individuals is a selective sample of those visiting the Department of Periodontics and may not truly represent the trends in the community on the whole. So the larger, more representative sample would have to be studied for more direct correlations.

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